

# Publicly Traded Longevity-Focused Companies

2021

# Longevity Publicly Traded Companies



Due to the crisis, 321 publicly traded companies experienced a 27% decline in their stock prices in March 2020. Most of the companies recovered from that and presented **4.17% Growth with a cumulative capitalization of \$16.03T**.

In 2020, **19 companies** announced the closing of their IPOs. The biggest companies are **Amwell, One Medical, Abcam, ALX Oncology, and Outset Medical** by resulting in capitalization.

The largest longevity companies are **UnitedHealth Group, Ping An, Intel, Novartis, and AbbVie**.

Technologically, publicly-traded longevity-focused companies are similar to other companies in the sector (i.e., those that reached B or C funding rounds), which means that their market capitalization growth can approximate the dynamics of the whole industry.

# Longevity Market Capitalization

Our longevity stock index includes more than 300 longevity-focused corporations operating in the biotech and IT sectors.

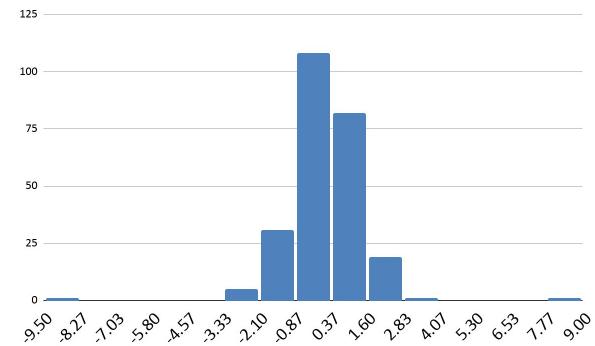
Despite the longevity stock market segment being more volatile (by standard deviation), growth in the market capitalization of longevity-focused corporations far exceeds that of the entire market (as per the S&P500 index), as well as the general biotech industry indices (IBB and NBI).

Interestingly, distribution of the returns in the longevity stock market segment is right-skewed, which makes it different from the vast majority of stock indices and segments. What it means is that extraordinary positive events that rarely occur in the market play a major role in the capitalization of this segment, a phenomenon that can be described as the presence of “anti-black swans”. Many other indices are, on the contrary, characterized by negative skewness, which means that extraordinary negative events have greater probability of happening.

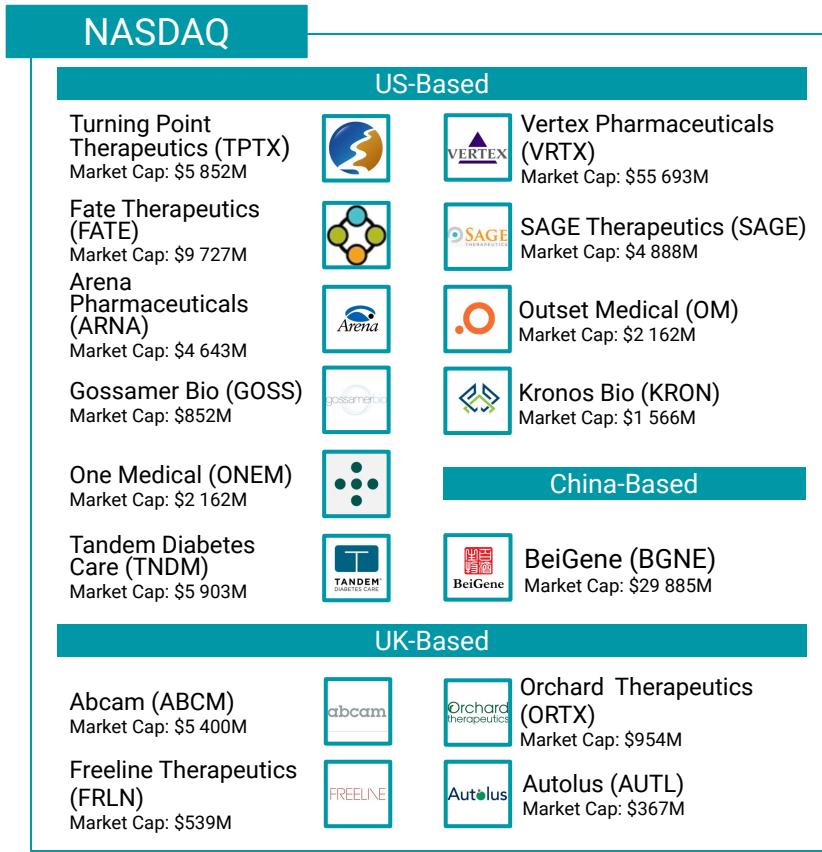
Distribution of longevity stock returns is definitely something that cannot be referred to as normal (curtosis exceeds 4.7).

Index	Correlation with longevity market	Average daily return in 2020	Average daily volatility in 2020	Skewness	Curtosis
<b>Longevity Index</b>	-	0.12	1.29	-0.44	17.86
<b>IBB</b>	0.97	0.12	2.13	-0.15	3.11
<b>S&amp;P500</b>	0.99	0.03	2.31	-0.97	8.56
<b>NBI</b>	-0.14	0.12	2.16	-0.19	3.40

**Longevity stock returns histogram**



# Top-20 Publicly Traded Longevity-Focused Companies



## Euronext Brussel (BR)

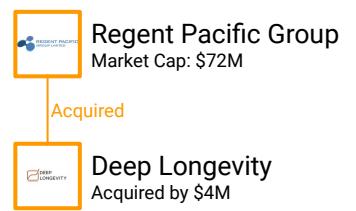


## Copenhagen (CPH)



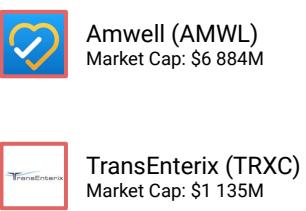
## Hong Kong (HKD)

### Hong Kong-Based



## NYSE

### US-Based



# Longevity IPOs in 2020

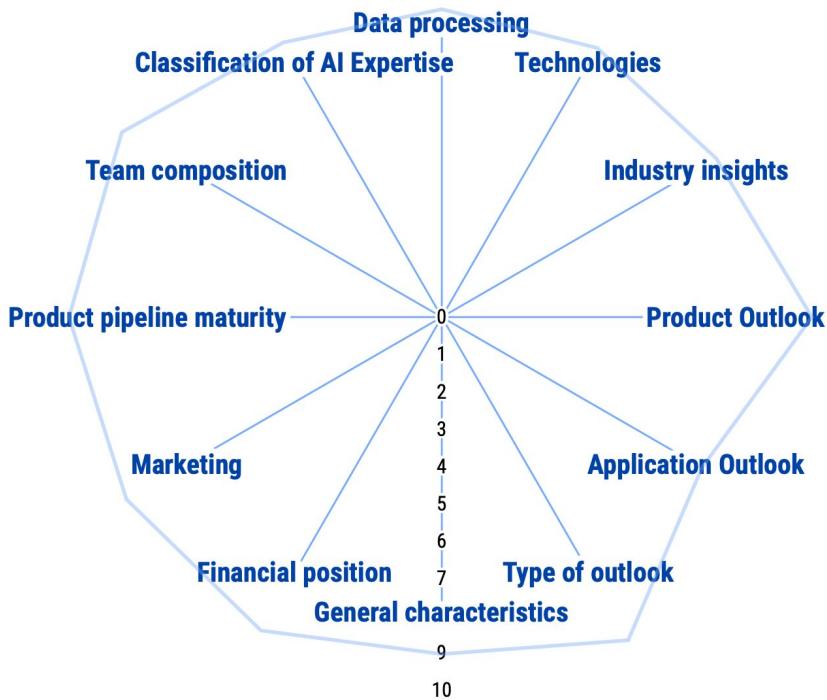
Despite the crisis, all newly formed public companies have announced the successful closing of their IPOs. That is an indication of a volatile and yet steady growth, even though the net income of all corporations remains negative. Most IPOs took place in the USA in the second half of the year. The companies' beta is smaller than 1 (although it is positive), which means that the dynamics of longevity stock prices is in line with the general market dynamics; however, the dynamics tends to be less pronounced (although volatility (by standard deviation) can be relatively high).

Name	Country	Funding Amount. M\$	Investments in 2020 (M\$)	IPO Date	Capitalization (M\$)	ROA	ROE	Profit margin	Operating margin	EV/EBITDA	Net income
<b>Amwell</b>	USA	1553	1036.0	17.09.2020	7036	N/A	N/A	-85.51%	-87.39%	-30.12	-197
<b>One Medical</b>	USA	777.1	245.0	30.01.2020	6152	-7.51%	-26.19%	-29.78%	-26.06%	-93.34	-100
<b>Abcam</b>	UK	492.2	156.5	21.10.2020	5372	4.42%	2.82%	4.81%	0	121.85	13
<b>ALX Oncology</b>	USA	327.5	266.5	16.07.2020	3092	N/A	N/A	0	-1401.71%	-84.3	-35
<b>Outset Medical</b>	USA	689.0	366.7	14.09.2020	2094	N/A	N/A	-273.79%	-262.55%	-17.3	-109



# Longevity IPOs in 2020

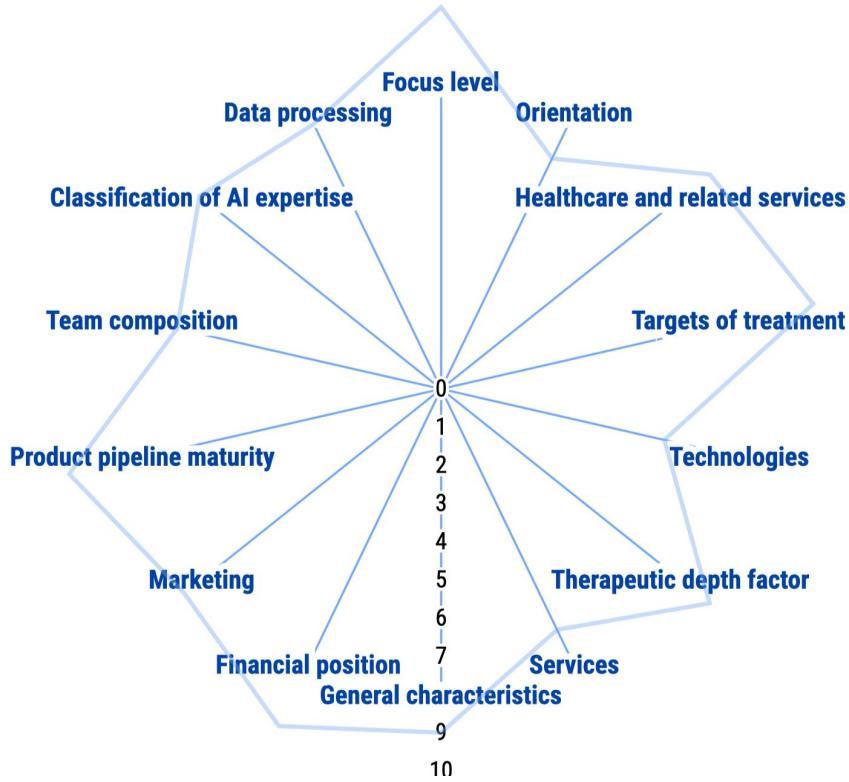
Name	Country	Funding Amount. M\$	Investments in 2020 (M\$)	IPO Date	Capitalization (M\$)	ROA	ROE	Profit margin	Operating margin	EV/EBITDA	Net income
Genetron Health	China	388.0	256.0	19.06.2020	1775	-12.92%	-2433.48%	0	0	-0.48	-469.59
Kronos Bio	USA	528.0	405.0	08.10.2020	1769	N/A	N/A	0	0	-30.98	-60.75
COMPASS Pathways	UK	243.7	207.5	18.09.2020	1631	N/A	N/A	0	0	-28.27	-49.16
Passage Bio	USA	441.5	216.0	27.02.2020	1271	-19.96%	-32.90%	0	0	-9.54	-86.44
Freeline Therapeutics	UK	434.8	238.8	07.08.2020	823	-12.71%	-27.37%	-243.39%	-212.81%	-37.41	-28.95
Inozyme	USA	262.1	112.0	23.07.2020	652	N/A	N/A	0	0	-9.40	-22.49
Akouos	USA	350.1	312.5	25.06.2020	628	N/A	N/A	0	0	-6.89	-45.67
Pandion Therapeutics	USA	273.0	215.0	16.07.2020	563	N/A	N/A	0.00%	-415.33%	-8.88	-26.04
BioVie	USA	28.1	15.6	17.09.2020	559	-16.98%	-187.97%	0	0	-95.10	-5.52
Fusion Pharmaceuticals	Canada	170.9	232.9	25.06.2020	504	N/A	N/A	0	0	-7.22	-73.15
Progenity	USA	238.5	100.0	19.06.2020	305	-111.71%	N/A	-208.01%	-239.45%	-1.67	-141.17
Numinus	Canada	20.8	20.8	20.05.2020	217	-110.97%	-460.92%	0.00%	-826.43%	-24.44	-9.60
Lyra Therapeutics	USA	123.5	94.0	05.05.2020	142	N/A	N/A	0	0	-3.06	-19.46
Perimeter Medical Imaging	Canada	19.8	7.9	29.06.2020	92	N/A	N/A	0	-7668.65%	N/A	N/A



Abcam provides support for the life science research field. The company supplies the global life science community with different biological tools, such as antibodies, proteins, assay kits, engineered cell lines, and biochemical reagents. It also develops diagnostic and therapeutic applications.



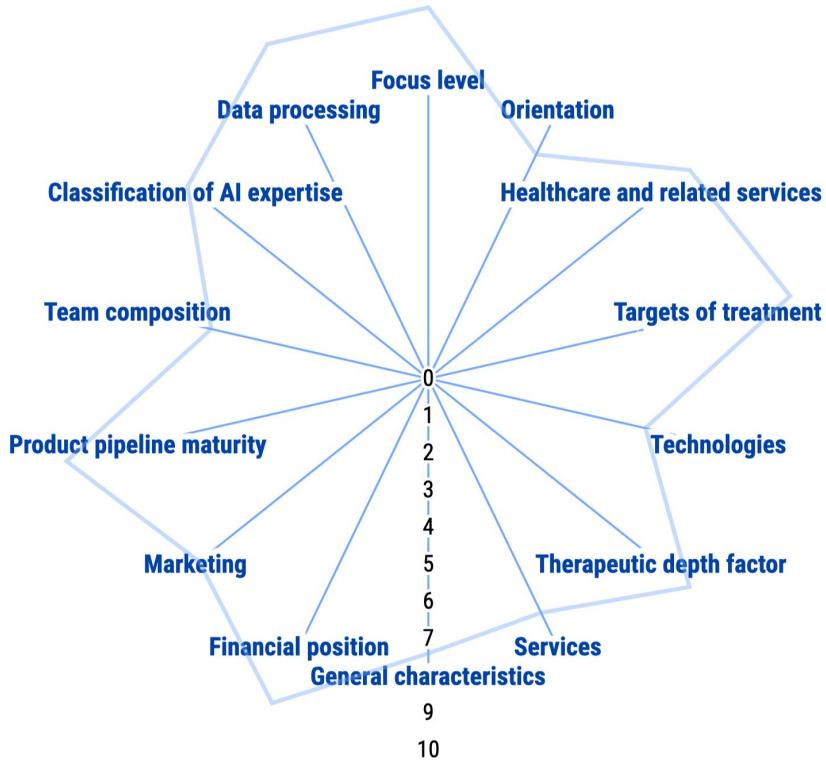
Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
ABCM	0.31%	2.55%	388.47%	4.88



By providing easier access to medical consultations, treating a wide range of diseases and launching preventive care programs, One Medical attempts to provide a possible solution to humanity's health problems



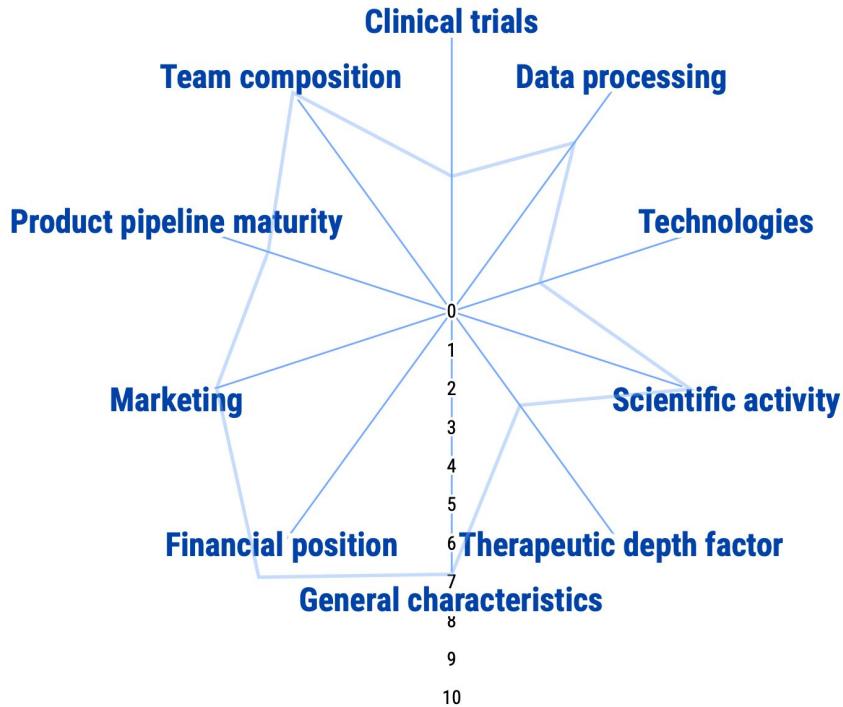
Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
ONEM	0.41%	5.06%	83.48%	5.81



Being a telemedicine solution company, Amwell connects providers, insurers, patients, and innovators to deliver greater access to more affordable and higher-quality medical care.



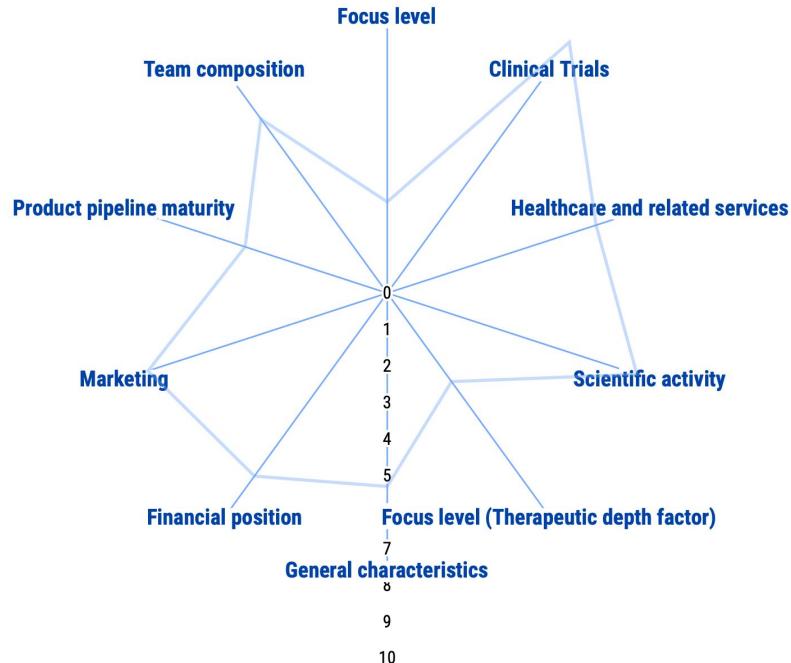
Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
AMWL	0.32%	6.05%	10.56%	5.06



ALX Oncology is a clinical-stage immuno-oncology company that helps people with cancer. It attempts to identify molecules that can help the human immune system kill tumors.



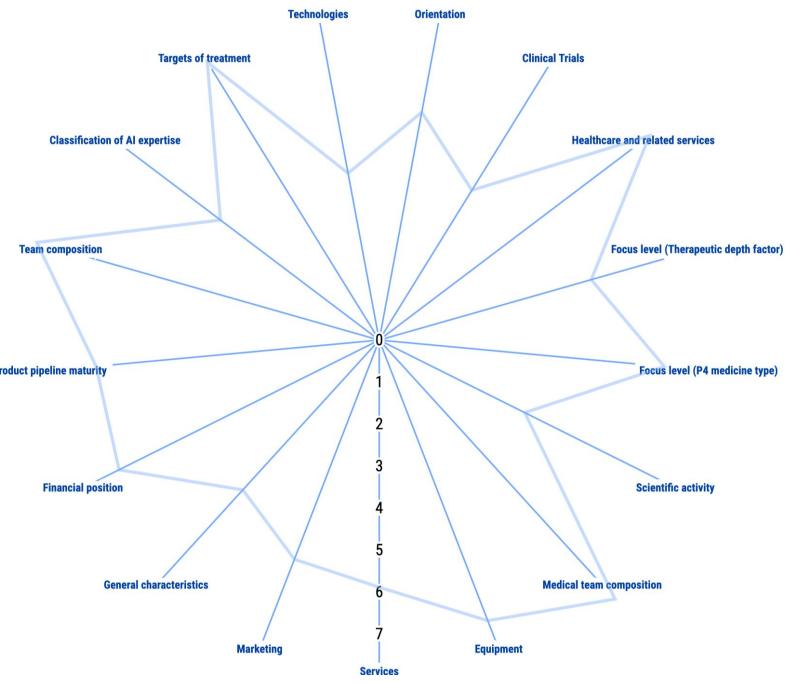
Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
ALXO	1.13%	6.67%	180.14%	2.99



Outset Medical is a pioneering medical technology company that specializes in reimagining dialysis for patients and health care providers. It has invented Tablo, a small-sized mobile machine designed to simplify clinical and home dialysis for patients with kidney diseases.

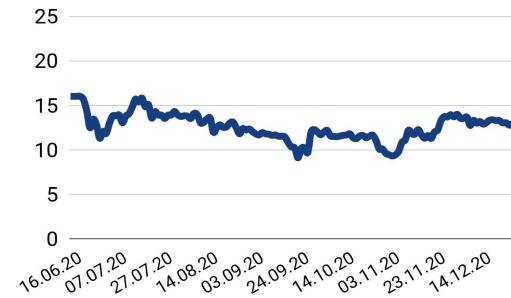


Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
OM	0.02%	4.38%	-2.03%	2.43

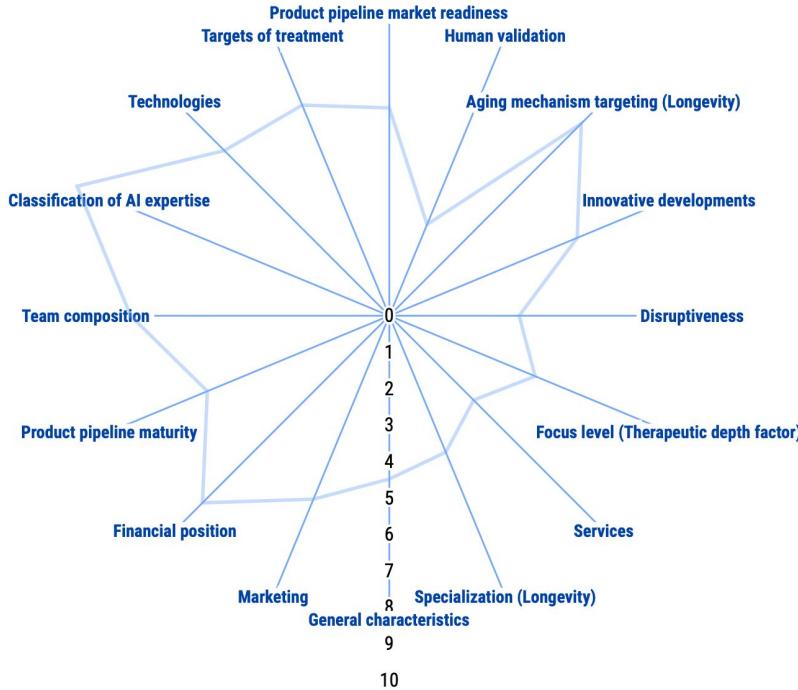


Genetron Health is a precision oncology company that provides genomic solutions in different areas, including early cancer screening, diagnosis, and monitoring, as well as biopharmaceutical services.

## Stock Price



Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
GTH	0.01	4.81	-0.10	2.06



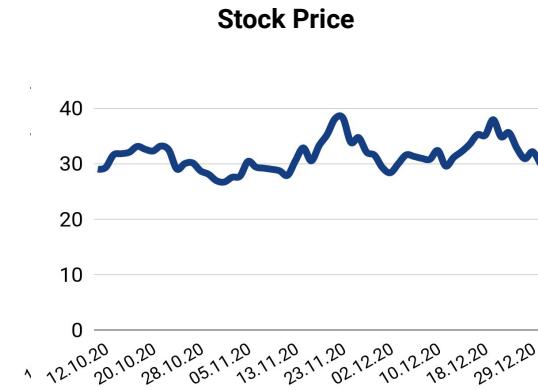
Kronos Bio is a biopharmaceutical company that develops new cancer transcriptomic targets and therapies aimed at blocking RNA-synthesis in tumors.



Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
CMPS	0.94	7.32	0.65	2.67

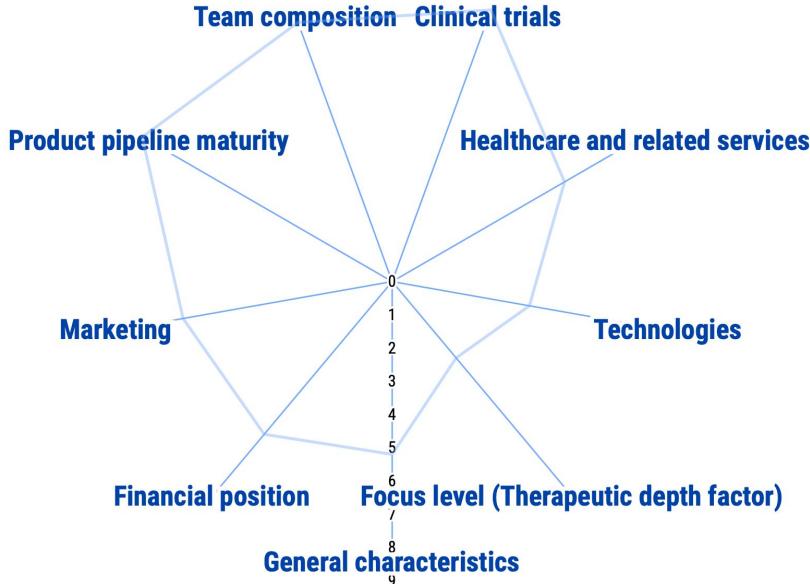


COMPASS is a mental health care company that specializes in developing a psilocybin therapy meant to heal treatment-resistant depression states. Every member of the team has a mental health story, be it their own, or that of their friends or loved ones.



Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
KRON	0.31	5.35	0.03	1.00

# Passage Bio

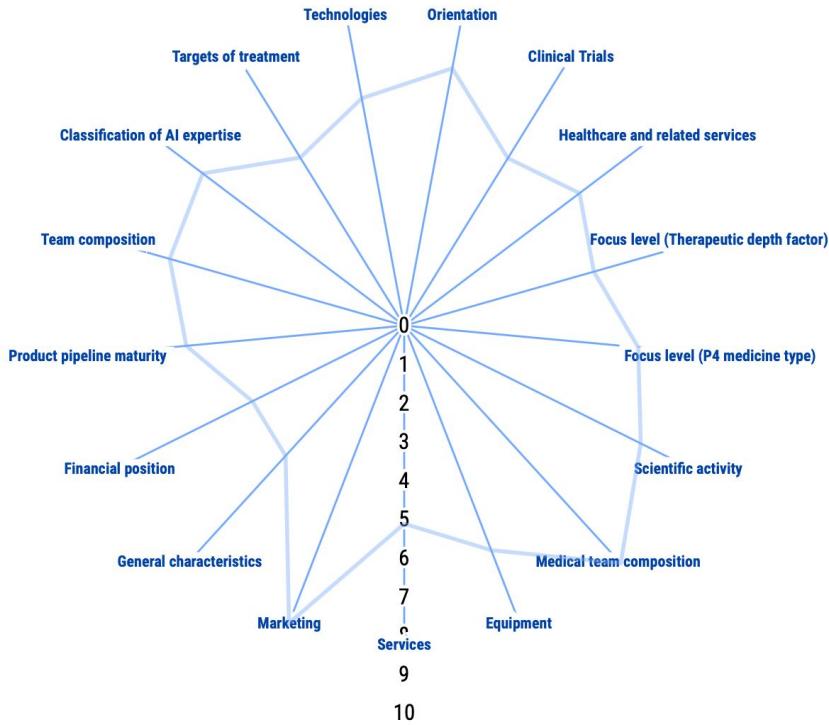


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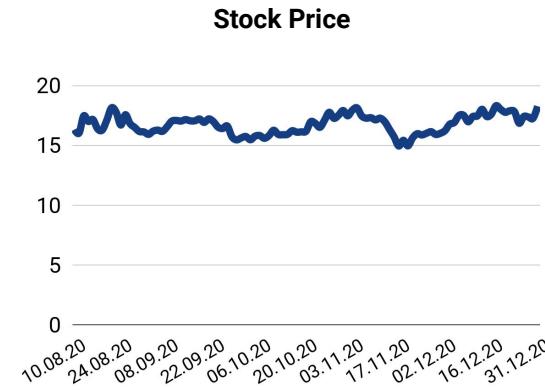


Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
PASG	0.27	6.24	0.19	1.16

# Freeline Therapeutics



Freeline is a clinical-stage gene therapy company dedicated to improving the lives of people suffering from inherited, systemic and debilitating diseases, including hemophilia B and Fabry disease.



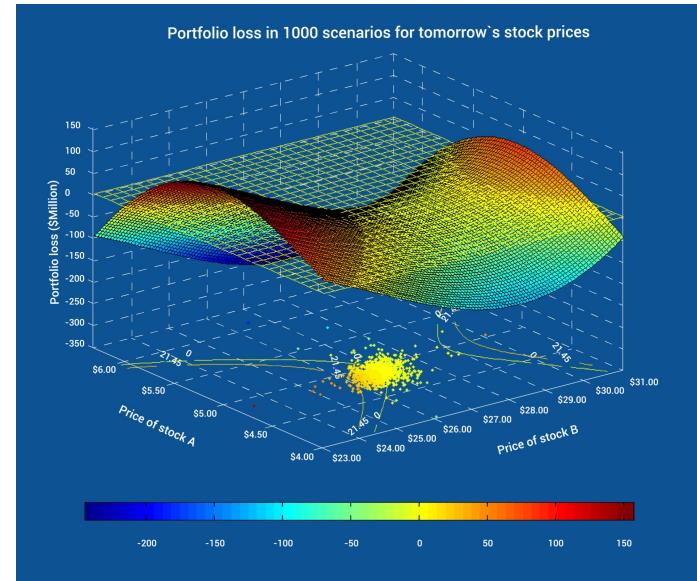
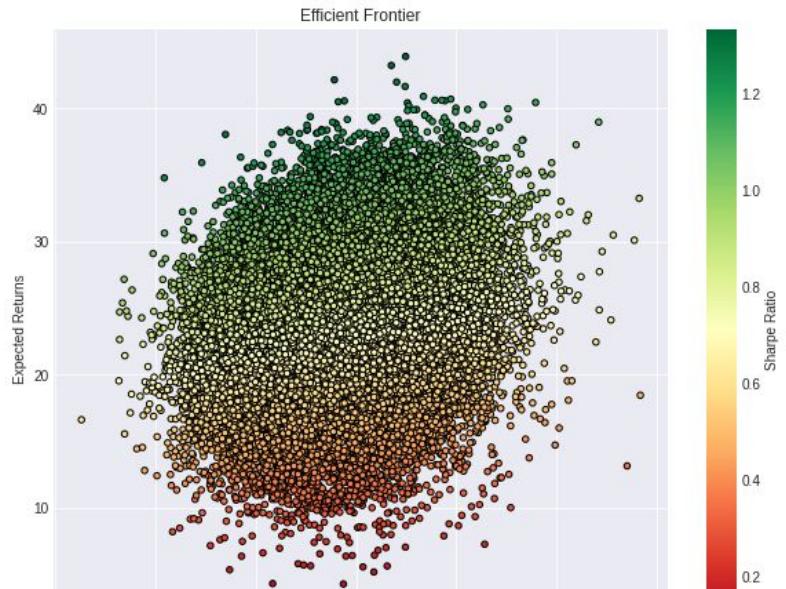
Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
FRLN	0.05	2.86	0.12	0.77

# Investment Portfolio Overview



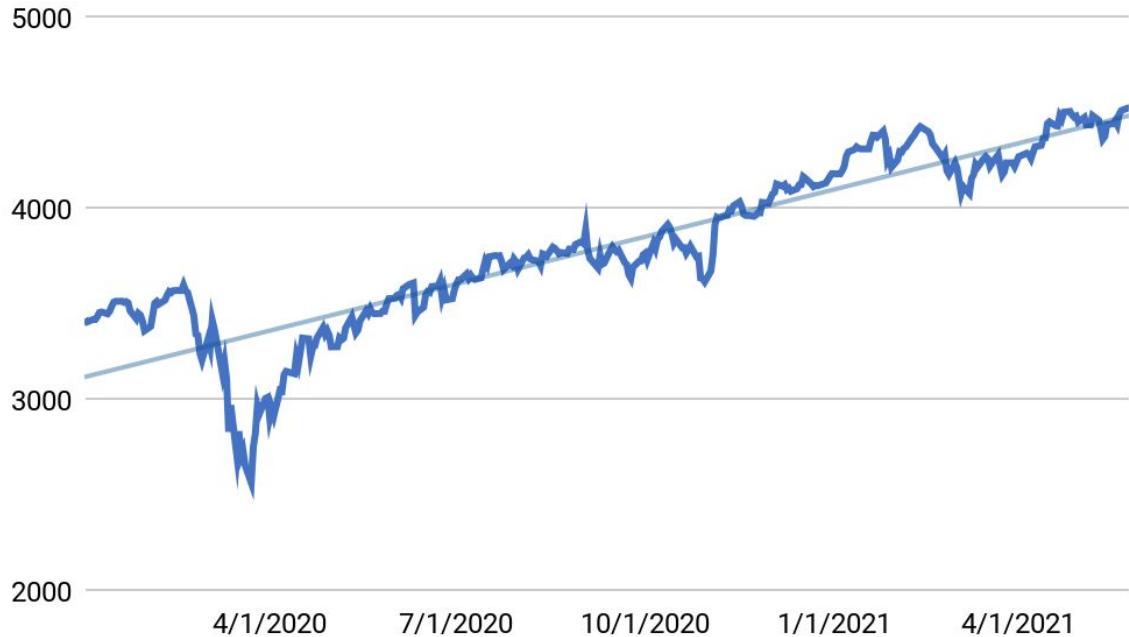
# Introduction

All companies mentioned in our portfolios represent Longevity industry. Not every company ended up in our list is a pharmaceutical company, since human longevity cannot be reduced to the medical parameters and pharmaceutical solutions only. The overall structure of this portfolio, as well as the computation technique, is discussed on the following slides. All companies included in our portfolios were selected and **analyzed via AI-enhanced algorithms and then by hand** in order to create the **most representative group of companies in Longevity sector**.



# Dynamics of Publicly Traded Longevity Companies

Cumulative Capitalization in 2020-2021, \$ Billion



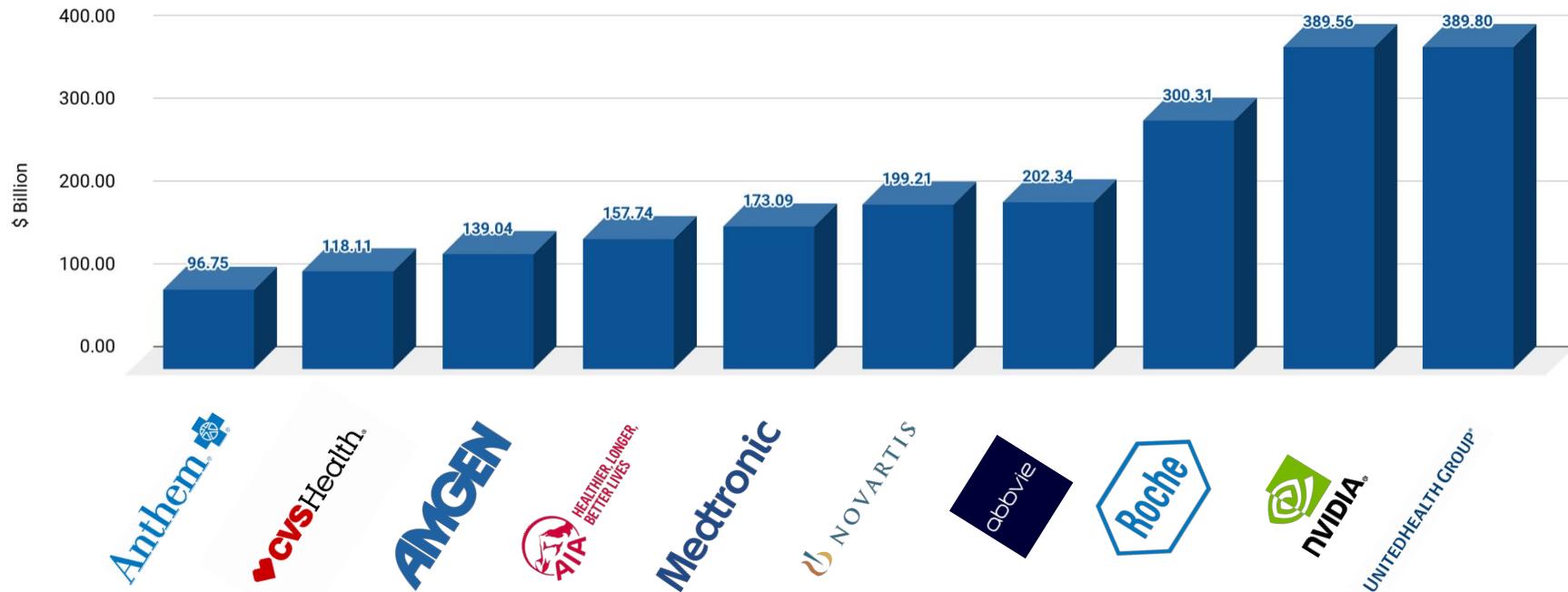
Despite the crisis, publicly traded companies continued their growth, having reached **\$4.52 trillion** of cumulative capitalization.

The largest companies by market capitalization taking part in our portfolios are **UnitedHealthGroup, NVIDIA and Roche**.

However, the beginning of **2020** brought a decline in the prices of shares of several major companies. We believe that the decline is due to the outflow of speculative capital and will not affect the long-term growth of the market.

Additional volatility is brought by the asymmetrical investment and resource distribution during the 2020-2021 period due to the COVID-19: non-related companies are limited in their financials and resources.

# Top 10 Publicly Traded Longevity Companies by Market Capitalization in 2021



The chart represents top 10 public companies that ended up in our portfolios according to their market capitalization (as of May of 2021). UnitedHealthGroup, NVIDIA and Roche top our list accounting 23.8% of the capitalization of all companies included. UNH, the leader of top 10 companies is less volatile than 75% of US stocks over the past 3 months, typically moving +/- 2% a week. UnitedHealth's revenue grew at an average rate of 9% over the last three years.

# Portfolio Structure



AGING  
ANALYTICS  
AGENCY



# Portfolio Structure / Stabilizers

After a long process of fundamental and technical analysis, we created a list of **601 companies** that, in our opinion, are of great investment interest. The companies were structured according to their market performance in different categories. The categories themselves represent key portfolio and market parameters. Every company got its place after computational parametric clusterization. As for groups, each includes 100 or more companies.

## Group A – TOP by Market Capitalization

Market capitalization is a widely-used investment parameters. Its popularity is gained due to the specific of the inner process of the market, briefly speaking, it is hard to gain big market capitalization, as well as to loose.

## Group B – Stabilizers

Stabilizers are big, well-known companies with great market performance. This set is considered to be the most reliable and is suitable for risk-averse investors because of the companies inside have only positive average return over the past 12 months. Considering the leitmotif of our portfolios, the companies chosen are also Longevity-related in their projects, collaborations and other market actions.

# Portfolio Structure / Stabilizers

## Group C – Promising companies

Promising companies tend to generate the highest returns. As a rule, these 100 companies have high volatility and low market caps. Most of these companies are new to the market, have experienced changes in their pipelines or have a lot of room for growth in future.

## Group D – Performers

The so-called Performers are companies of considerable size with good market statistics, pipelines and market strategies. These companies have big market share-growth potential since they big enough to compete and stable enough to be more independent from different groups of investors.

## Group E – Balanced Set

Balanced Set comprises of companies with the best performance from 4 aforementioned groups. Additionally, to the final list were included the companies according to the modified Cowles-Jones coefficient. The thing is, the original Cowles-Jones coefficient defines one-direction dynamics of a row (price in our case), but our modification is about only ascending dynamics. So, this group is the most diversified and these stocks have growth dynamics mostly.

# Company Overview



## Portfolio Structure / Market Capitalization Overview

**Roche Holding** (RHHBY) – AG Roche Holding AG engages in the prescription pharmaceuticals and diagnostics businesses in Switzerland, Germany, and internationally. It offers pharmaceutical products for treating anemia, cancer, cardiovascular, central nervous system, dermatology, hepatitis B and C, HIV/AIDS, inflammatory and autoimmune, intensive care medicine, leukemia, lymphoma, metabolic disorders, ophthalmology, respiratory disorders, rheumatoid arthritis, skin cancer, and transplantation.



**UnitedHealth Group** (UNH) – UnitedHealth Group Incorporated operates as a diversified health care company in the United States. The company offers consumer-oriented health benefit plans and services for national employers, public sector employers, mid-sized employers, small businesses, and individuals; health and well-being services to individuals age 50 and older, addressing their needs for preventive and acute health care services, as well as services dealing with chronic disease and other specialized issues for older individuals.



**NVIDIA** (NVDA) – NVIDIA Corporation operates as a visual computing company worldwide. It operates in two segments, Graphics and Compute & Networking. The company is teaming up with pharma company AstraZeneca and the University of Florida on new artificial intelligence research projects aimed at boosting drug discovery and patient care. According to Powell, transformer neural networks could help accelerate research and speed up drug discovery.



## Portfolio Structure / Market Capitalization Overview

**Novartis (NVS)** – Novartis AG researches, develops, manufactures, and markets healthcare products worldwide. The company provides ophthalmology, neuroscience, immunology, hepatology and dermatology, respiratory, established, and cardiovascular, renal and metabolism medicine products.



**AbbVie (ABBV)** – AbbVie is one of the so-called Big Pharma companies. The company uses AI not only for direct development but also for its own enhancement: Abbelfish Machine Translation and AbbVie Search are built for accelerating and scaling the work of the company' researchers, reducing the time it takes to discover and deliver transformative medicines and therapies for patients.



**Amgen (AMGN)** – Amgen Inc. discovers, develops, manufactures, and delivers human therapeutics worldwide. It focuses on inflammation, oncology/hematology, bone health, cardiovascular disease, nephrology and neuroscience areas.



**Medtronic (MDT)** – Medtronic plc develops, manufactures, distributes, and sells device-based medical therapies to hospitals, physicians, clinicians, and patients worldwide. It operates through four segments: Cardiac and Vascular Group, Minimally Invasive Therapies Group, Restorative Therapies Group, and Diabetes Group.



## Portfolio Structure / Market Capitalization Overview

**AIA Group** (1299) – AIA Group Limited provides insurance products and services. The company offers life, medical, accident protection, critical illness protection, and disability protection insurance products, as well as savings plans for individuals; and employee benefit, credit insurance, retirement, and regional solutions for businesses. It also distributes investment and other financial services products.



**Gilead Sciences** (GILD) – Gilead Sciences, Inc., a research-based biopharmaceutical company, discovers, develops, and commercializes medicines in the areas of unmet medical need in the United States, Europe, and internationally. The company focuses on HIV, Coronavirus and liver disease treatment.



**CVS Health Corporation** (CVS) – CVS Health Corporation provides health services in the United States. The company's Pharmacy Services segment offers pharmacy benefit management solutions, including plan design and administration, formulary management, retail pharmacy network management, mail order pharmacy, specialty pharmacy and infusion, clinical, and disease and medical spend management services. It serves employers, insurance companies, unions, government employee groups, health plans, prescription drug plans, Medicaid managed care plans, plans offered on public health insurance and private health insurance exchanges, other sponsors of health benefit plans, and individuals.



## Portfolio Structure / Stabilizers Overview

**UnipolSai Assicurazioni (US)** – UnipolSai Assicurazioni S.p.A. operates as an insurance company in Italy. The company provides insurance products and services in the areas of motor vehicle third party liabilities (TPL); sea, lake, and river; land vehicle hulls; accident and health; fire and other damage to property; general TPL; and other products. It also provides life insurance products and services, such as whole and term life insurance, unit linked/indexed link policies, health, capitalization insurance, and pension funds.



**Essentra (ESNT)** – Essentra plc provides essential components and solutions worldwide. Different divisions provide a variety of products, including PCB and electronics hardware, and tools and precision instruments for a range of applications and industries that are used in protection and finish products.



**UNIQA Insurance Group AG (UQA)** – The company's product portfolio includes life, health, property and casualty, fire and business interruption, household and other property, liability, legal expense, motor TPL and other motor, and other insurance products, as well as marine, aviation, and transport insurance products. It also engages in reinsurance business.



## Portfolio Structure / Stabilizers Overview

**EMIS Group** (EMIS) – EMIS Group plc, through its subsidiaries, provides connected healthcare software and systems for healthcare professionals in the United Kingdom. It operates in two segments, EMIS Health and EMIS Enterprise. The EMIS Health segment supplies integrated care technology to national health service markets, including primary, community, acute, and social care.



**Frontage Holdings** (1521) – Frontage Holdings Corporation, a contract research organization, provides research, analytical, and development services to pharmaceutical, biotechnology, and agrochemical companies, as well as bioequivalence studies.



**OPKO Health** (OPK) – OPKO Health, Inc., a healthcare company, engages in the diagnostics and pharmaceuticals businesses worldwide. The company offers laboratory testing services for the detection, diagnosis, evaluation, monitoring, and treatment of diseases, including esoteric testing, molecular diagnostics, anatomical pathology, genetics, women's health and other services.



**NorthWest Healthcare Properties REIT** (NWHUN) – The company provides investors with access to a portfolio of high quality healthcare real estate comprised of interests in a diversified portfolio of 189 income-producing properties and 15.3 million square feet of gross leasable area located throughout major markets in the Americas, Europe, and Australasia.



## Portfolio Structure / Stabilizers Overview

**Oxford Biomedica (OXB)** – Oxford Biomedica plc, a biopharmaceutical company, engages in the research, development, and bioprocessing of lentiviral vector and cell therapy products for the treatment of various diseases in Europe and internationally. The company operates in two segments, Platform and Product. Its LentiVector platform technology integrates genes into non-dividing cells, including neurons in the brain and retinal cells in the eye, as well as accommodates multiple therapeutic genes.



**CStone Pharmaceuticals (2616)** – CStone Pharmaceuticals, a biopharmaceutical company, focuses on the development and commercialization of immuno-oncology and molecularly targeted drugs to address unmet medical needs in cancer treatment worldwide.



**Healthcare Trust of America (HTA)** – Healthcare Trust of America, Inc. is the largest dedicated owner and operator of MOBs in the United States, comprising approximately 25.1 million square feet of GLA, with \$7.4 billion invested primarily in MOBs. HTA provides real estate infrastructure for the integrated delivery of healthcare services in highly-desirable locations.



## Portfolio Structure / Promising Companies

**Access Bio** (A950130) – The company engages in the research, development, and manufacture of in vitro rapid diagnostic tests, biosensors, and molecular diagnostic products worldwide. The company was founded in 2002 and is headquartered in Somerset, New Jersey.



**Spine Injury Solutions** (SPIN) – together with its subsidiaries, operates as a technology, marketing, billing, and collection company that provides diagnostic services for patients with spine injuries resulting from traumatic accidents. The company offers turnkey solutions to spine surgeons, orthopedic surgeons, and other healthcare providers for the treatment of musculo-skeletal spine injuries resulting from automobile and work-related accidents.



**SOL Global Investments Corp.** (SOL) – is a principal investment firm with a focus on the biopharmaceutical and cannabis industry in the United States. The company was formerly known as Scythian Biosciences Corp. and changed its name to SOL Global Investments Corp. in October 2018. SOL Global Investments Corp. is based in Toronto, Canada.



**Celldex Therapeutics** (CLDX) – a biopharmaceutical company, engages in developing therapeutic monoclonal and bispecific antibodies for the treatment of various diseases. Its drug candidates include antibody-based therapeutics to treat patients with inflammatory diseases and various forms of cancer.



## Portfolio Structure / Promising Companies

**Bionano Genomics** (BNGO) – operates as a life sciences instrumentation company in the genome analysis space. The company develops and markets the Saphyr system, a platform for ultra-sensitive and ultra-specific structural variation detection that enables researchers and clinicians to accelerate the search for new diagnostics and therapeutic targets, and to streamline the study of changes in chromosomes.



**PetVivo Holdings** (PETV) – is a biomedical device company, engages in the licensing and commercializing medical devices and biomaterials for the treatment of afflictions and diseases in animals. Its lead product is Kush, a veterinarian-administered joint injection for the treatment of osteoarthritis and lameness in dogs and horses. The company's pipeline products includes 17 therapeutic devices for veterinary and human clinical applications. PetVivo Holdings, Inc. is headquartered in Minneapolis, Minnesota.



**Wuhan General Group** (WUHN) – through its subsidiaries, researches, develops, and commercializes a range of cannabidiol (CBD)-based products under the Dr. AnnaRx brand for pharmacies. It also focuses on exploring and developing other indications for psilocybin new therapies that will enable patients who suffer from mental illness. The company offers its products for medical applications, including cancer, mental disorders, chronic pain, and others.



## Portfolio Structure / Promising Companies

**Xcelerate** (XCRT) – through its subsidiaries, provides dental services in the United States. The company operates a network of dental providers, the Dental Referral, who provide dental services through the network to union members in accordance with arrangements between UDC and various labor unions. It also manages the operation of a general dental practice. The company is based in Coral Springs, Florida.



**Ocugen** (OCGN) – is a clinical-stage biopharmaceutical company, focuses on the developing gene therapies to cure blindness diseases. The company's pipeline product includes OCU400, a novel gene therapy product candidate restoring retinal integrity and function across a range of genetically diverse inherited retinal diseases, such as retinitis pigmentosa and leber congenital amaurosis; OCU410, gene therapy candidate for the treatment of dry age-related macular degeneration (AMD); and OCU200, a novel fusion protein that is in preclinical development stage for the treatment of diabetic macular edema, diabetic retinopathy, and wet AMD.



**Curis** (CRIS) – is a biotechnology company, engages in the discovery and development of drug candidates for the treatment of human cancers in the United States. Its clinical stage drug candidates include CA-4948, an oral small molecule drug candidate, which is in Phase I clinical trial for the treatment of non-hodgkin lymphomas, and acute myeloid leukemia and myelodysplastic syndromes; and CI-8993, a monoclonal antibody designed to antagonize the V-domain Ig suppressor of T cell activation that is in Phase Ia/Ib clinical trial in patients with solid tumors.



## Portfolio Structure / Performers Overview

**Wisr** (WZR) – is Australia's first neo-lender and FinTech pioneer in the rapidly growing Australian consumer finance market. It offers personal loans for 3, 5, and 7-year maturities to consumers, then on-sells these loans to retail, wholesale, and institutional investors.



**Allergy Therapeutics** (AGY) – Allergy Therapeutics plc engages in the research and development of allergy treatments. The company sells injectable and sublingual allergen-specific immunotherapies; and offers prescription for the treatment of pollen-related allergies, particularly to grasses, weeds, and trees, as well as diagnostics.



**e-Therapeutics** (ETX) – e-Therapeutics plc operates as a drug discovery company in the United Kingdom. The company's Network-Driven Drug Discovery platform perform in silico phenotypic screens to generate sets of small molecules that are enriched in active compounds ensuring high in vitro hit rates in complex phenotypic screens; and Genome-Associated Interaction Networks platform to analyze genome-wide association study data, which identifies disease variants at the genome level to identify potential intervention strategies, therapies, and diagnostics, as well as developing RNAi platform to modulate any gene to harness novel targets identified computationally.



# Portfolio Structure / Performers Overview

**Open Orphan** (ORPH) – Open Orphan plc operates as a pharmaceutical service and contract research company. The company is involved in testing vaccines and antivirals using human challenge clinical trials. It provides services to Big Pharma, biotech, government, and public health organizations.



**Water Oasis Group** (1161) – Water Oasis Group Limited, an investment holding company, provides beauty and related wellness services. It provides general, specialist, and medical beauty services to high-end, mid-range, and mass-market consumer sectors for men and women.



**Integrated Diagnostics Holdings** (IDHC) – Integrated Diagnostics Holdings plc, a consumer healthcare company, provides various medical diagnostics services to patients. It offers approximately 2,000 diagnostic test services, including immunology, microbiology, hematology, endocrinology, clinical chemistry, molecular biology, cytogenetics, histopathology, and radiology.



**EKF Diagnostics Holdings** (EKF) – EKF Diagnostics Holdings plc designs, develops, manufactures, and sells diagnostic instruments, reagents, and other ancillary products in Europe, the Middle East, the Americas, Asia, and Africa.



# Portfolio Structure / Performers Overview

**Oxford BioDynamics (OBD)** – Oxford BioDynamics Plc, a biotechnology company, discovers and develops biomarkers for use within the pharmaceutical and biotechnology industry primarily in the United states and internationally. The company provides EpiSwitch, a proprietary technology platform for the discovery, evaluation, validation, and monitoring of epigenetic biomarkers known as chromosome conformation signatures.



**Medica Group (MGP)** – Medica was established to offer hospital radiology departments independent support to address serious capacity issues for both urgent and non-urgent reporting, through the provision of a timely, high-quality clinical service within a strong clinical governance structure.



**Palatin Technologies (PTN)** – Palatin Technologies, Inc., a specialized biopharmaceutical company, develops targeted receptor-specific therapeutics for the treatment of various diseases in the United States. The company's lead product is Vyleesi, a melanocortin receptor agonist for the treatment of premenopausal women with acquired, generalized hypoactive sexual desire disorder. It is also developing oral PL8177, a selective melanocortin receptor (MC<sub>1</sub>) agonist peptide that has completed Phase I clinical trial for the treatment of inflammatory bowel diseases; and systemic PL8177, which has completed Phase I clinical trial for treating non-infectious uveitis and COVID-19.



## Portfolio Structure / Calculation Process

After the grouping, we have combined our companies in 5 portfolios. For every portfolio we have calculated 4 different investment strategies:

- ▶ 1) Equally weighted portfolio – in this type of portfolio every company has equal investment wages, so in case an investor wants to allocate \$1 Million, every company shall receive the exact same amount of money.
- ▶ 2) Minimum variance portfolio – in this type of portfolio companies' wages are designed in a way that allows us to minimize the overall volatility of the portfolio.
- ▶ 3) Market capitalization-weighted portfolio – in this type of portfolio companies with the biggest market capitalization receive the biggest investment wages.
- ▶ 4) Sharpe ratio-based portfolio – in this type of portfolio companies' wages are determined in coherence with the Sharpe ratio they have. So the better the Sharpe ratio, the bigger the wages.

# First Portfolio Overview



## 1st Sharpe Ratio-based Portfolio

Sharpe ratio-based portfolio has the **return** of **71.28%** in the past **12 months**. At the same time, **maximal** registered **return** for this portfolio equals to **74.05%**. Sharpe ratio performance surpasses 3 other investment strategies for the first set of companies that's why only it was included in the presentation.



12 Months performance	71.28%
Maximal return	74.05%
Portfolio standard deviation	0.9%
Skewness	-0.51
Kurtosis	1.36

# Second Portfolio Overview



## 2nd Sharpe Ratio-based Portfolio

Sharpe ratio-based portfolio has the 12 Months **return** of **79.49%**, whereas **maximal** registered **return** for this portfolio equals to **80.22%**. Sharpe ratio strategy slightly overweights equally weighted, minimum variance, and market capitalisation-weighted strategies by performance, while showing bigger deviation.



12 Months performance	79.49%
Maximal return	80.22%
Portfolio standard deviation	0.95%
Skewness	-0.20
Kurtosis	2.07

# Third Portfolio Overview



## 3rd Equally Weighted Portfolio

Equally weighted portfolio has the **return** of **175.63%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **206.29%**. The volatility for this portfolio is gained due to the autocorrelation and layering effects, since all companies perform on the same market and experiencing same problems.



12 Months performance	175.63%
Maximal return	206.29%
Portfolio standard deviation	1.46%
Skewness	-0.58
Kurtosis	2.4

## 3rd Capitalization-weighted Portfolio

Equally weighted portfolio has the **return** of **140.55%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **169.54%**. Here, the volatility of the portfolio is deeply connected to the performance of top-weighted companies that were affected by the seasonality of the market.



12 Months performance	140.55%
Maximal return	169.54%
Portfolio standard deviation	2.19%
Skewness	0.10
Kurtosis	0.73

## 3rd Minimum Variance-adjusted Portfolio

Minimum Variance-adjusted portfolio has the 12 Months **return** of **168.98%**. At the same time, **maximal** registered **return** for this portfolio equals to **177.09%**. This portfolio shows low standard deviation and great revenue dynamics, being one of optimal options between revenue and safeness.



12 Months performance	168.98%
Maximal return	177.09%
Portfolio standard deviation	0.78%
Skewness	-0.31
Kurtosis	1.04

## 3rd Sharpe Ratio-based Portfolio

Sharpe ratio-based portfolio has the 12 Months **return** of **226.41%**. At the same time, **maximal** registered **return** for this portfolio equals to **233.03%**. Compared to the first and second portfolios, here we have the highest both 12 month trailing and maximal returns. The reason is that this portfolio includes 100 promising companies with the best performance.



12 Months performance	226.41%
Maximal return	233.03%
Portfolio standard deviation	0.89%
Skewness	-0.05
Kurtosis	0.6

# Fourth Portfolio Overview



AGING  
ANALYTICS  
AGENCY



## 4th Equally Weighted Portfolio

Equally weighted portfolio has the **return** of **60.35%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **72.01%**. The latter decline of the performance is based on the pandemic post-peak financial diversification and could be seen in the performance of all Equally Weighted portfolios among companies.



12 Months performance	60.35%
Maximal return	72.01%
Portfolio standard deviation	1.21%
Skewness	-0.47
Kurtosis	2.45

## 4th Minimum Variance-adjusted Portfolio

Minimum Variance-adjusted portfolio has the **return** of **37.22%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **40.90%**. As could be seen from the graph, besides the low volatility, this portfolio also has good growth forecast in the near future.



12 Months performance	37.22%
Maximal return	40.90%
Portfolio standard deviation	0.54%
Skewness	-0.28
Kurtosis	1.51

## 4th Sharpe Ratio-based Portfolio

Sharpe ratio-based portfolio has the **return** of **110.76%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **113.96%**. The performance of this portfolio is somewhere in the middle among other Sharpe ratio-based ones.



12 Months performance	110.76%
Maximal return	113.96%
Portfolio standard deviation	0.75%
Skewness	-0.38
Kurtosis	3.71

# Fifth Portfolio Overview



## 5th Equally Weighted Portfolio

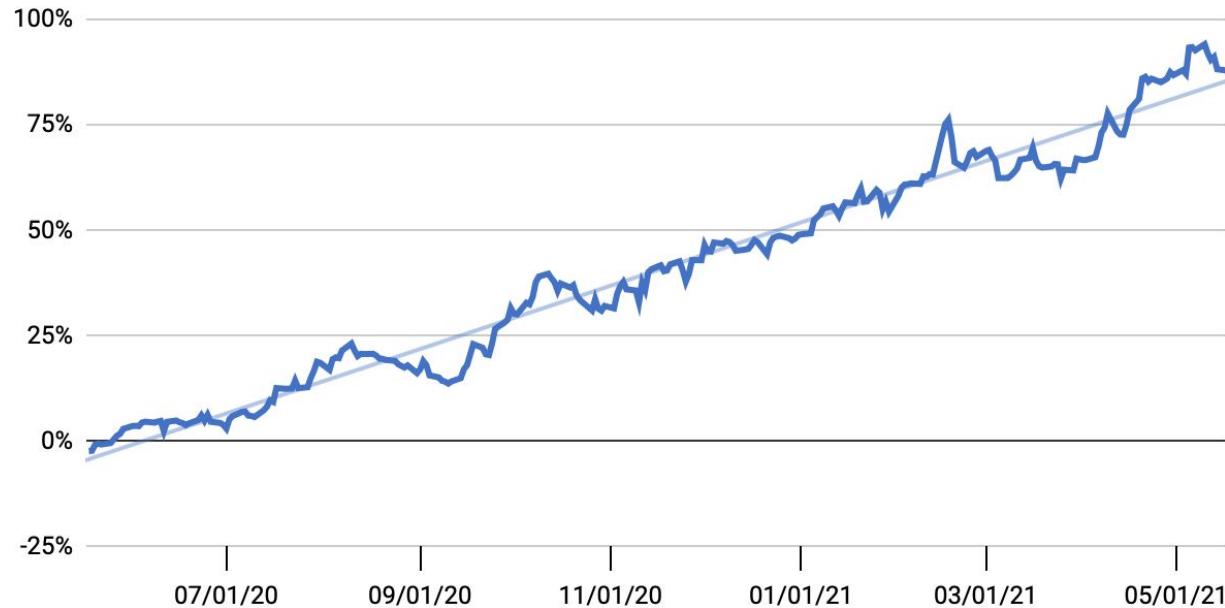
Equally weighted portfolio has the **return** of **88.94%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **94.40%**.



12 Months performance	88.94%
Maximal return	94.40%
Portfolio standard deviation	1.14%
Skewness	-0.54
Kurtosis	1.67

## 5th Minimum Variance-adjusted Portfolio

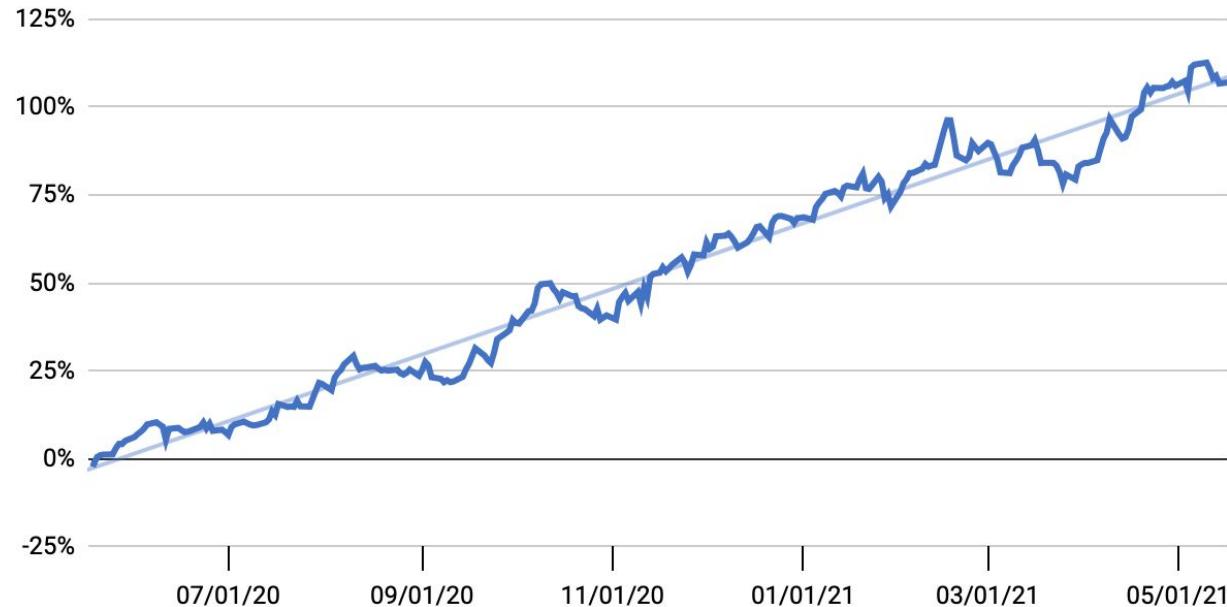
Minimum Variance-adjusted portfolio has the **return** of **87.76%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **93.99%**. In fact, this portfolio outperforms the previous one by volatility showing the similar rate of return.



12 Months performance	87.76%
Maximal return	93.99%
Portfolio standard deviation	0.61%
Skewness	-0.14
Kurtosis	0.5

## 5th Capitalization-weighted Portfolio

Capitalization-weighted portfolio has the 12 months trailing **return** of **106.96%**. At the same time, **maximal** registered **return** for this portfolio equals to **112.55%**. It is the only capitalization-weighted portfolio that we propose, and it surpasses equally weighted and minimum variance portfolios for the fifth set of companies by return.



12 Months performance	106.96%
Maximal return	112.55%
Portfolio standard deviation	1.34%
Skewness	-0.35
Kurtosis	3.25

## 5th Sharpe Ratio-based Portfolio

Sharpe ratio-based portfolio has the **return** of **121.38%** in the past 12 months. At the same time, **maximal** registered **return** for this portfolio equals to **130.77%**. The performance of this portfolio is somewhat analogous to the previous Sharpe ratio-based one, with insignificant difference in standard deviation and other technical indicators.



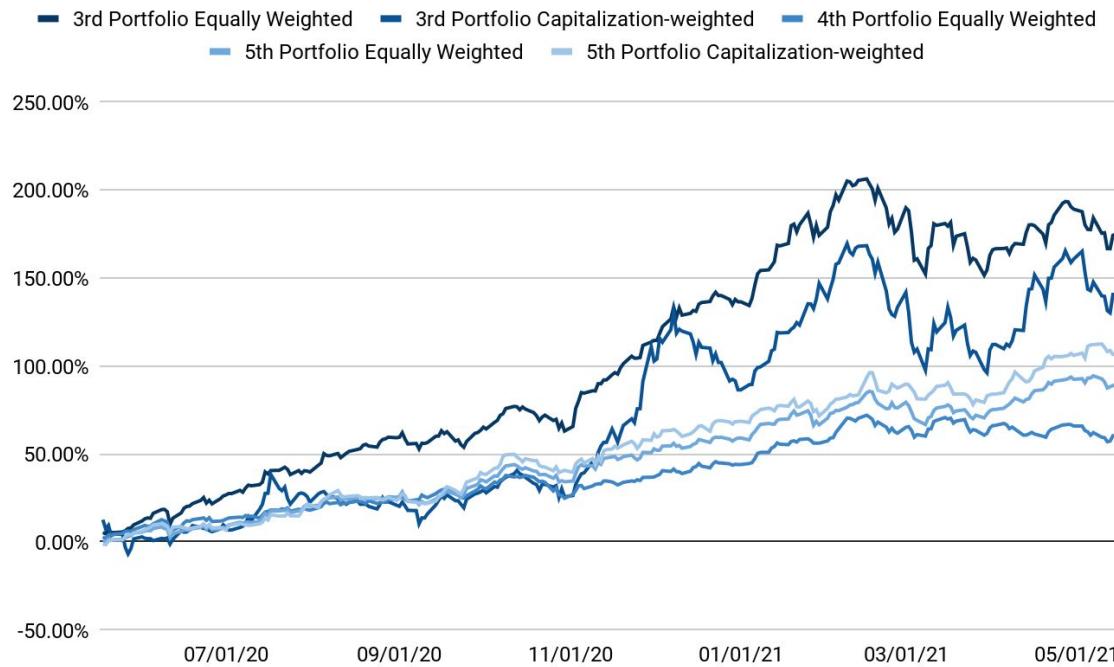
12 Months performance	121.38%
Maximal return	130.77%
Portfolio standard deviation	0.80%
Skewness	-0.05
Kurtosis	0.41

# Portfolios Performance Overview



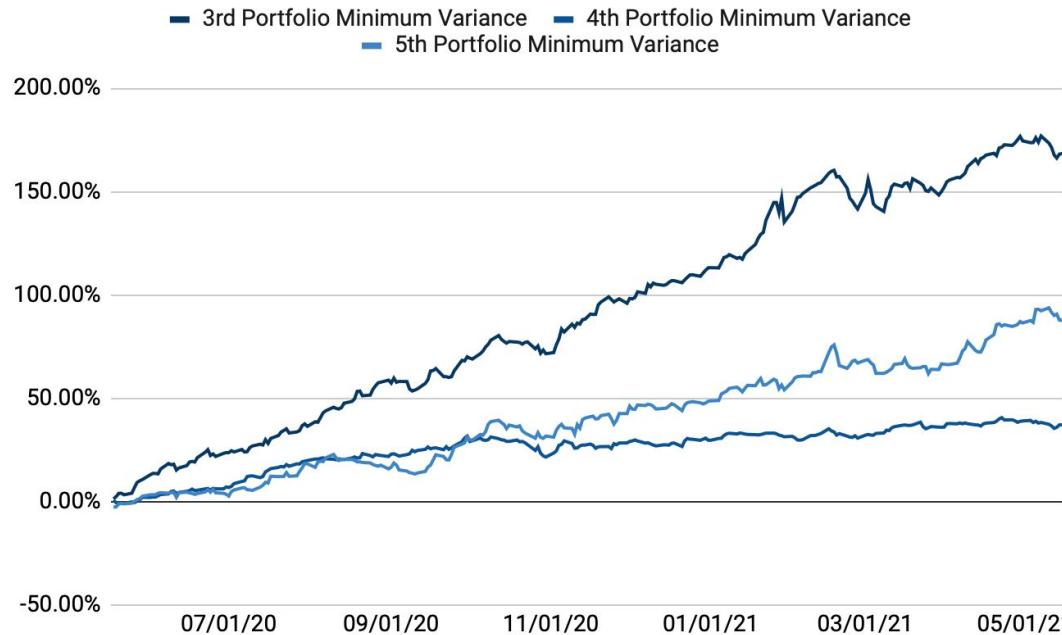
## Overall Performance / Equally Weighted and Capitalization-weighted Portfolios

Here is the simultaneous performance of the Third, Fourth and Fifth Portfolios with equal weights, as well as Fifth Capitalization-weighted Portfolio:



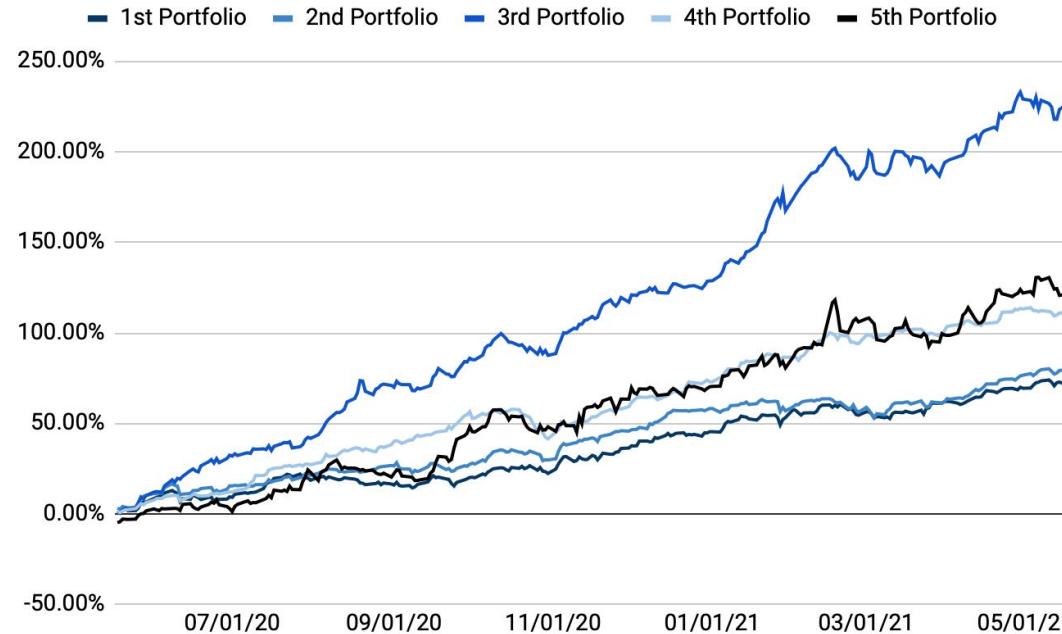
## Overall Performance / Minimum Variance Portfolios

Here is the simultaneous performance of the Third, Fourth and Fifth Minimum Variance Portfolios. These investment strategies demonstrate the lowest risk often outperforming equally weighted and capitalization-based ones by return.



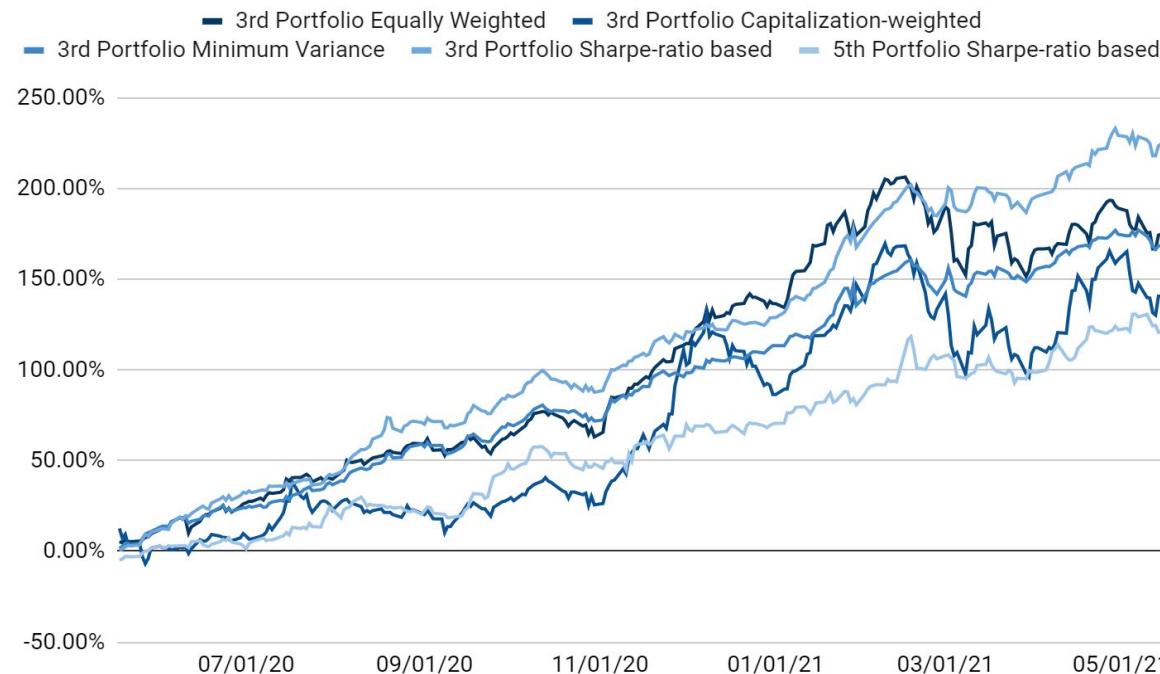
## Overall Performance / Sharpe Ratio-based Strategies

Here is the simultaneous performance of the Sharpe ratio-based investment strategies. They provide investors with the highest returns as well as the highest risk-adjusted returns (Sharpe ratios).



## Overall Performance / Top Portfolios Performance

Here is the simultaneous performance of our Top-5 portfolios among all combination of the companies.



# Overall Performance / Performance matrix

This is a brief performance matrix of all our portfolios with different investment strategies.  
The darker colour indicates the better performance and vice versa:

Return   SD	Equally Weighted	Minimum Variance	Market Cap	Sharpe
Portfolio 1	25.96%   0.96%	10.99%   0.57%	24.26%   0.91%	71.98%   0.90%
Portfolio 2	40.67%   1.11%	19.78%   0.6%	23.8%   0.92%	79.49%   0.95%
Portfolio 3	175.63%   1.46%	168.98%   0.78%	140.55%   2.19%	226.41%   0.89%
Portfolio 4	60.35%   1.21%	37.22%   0.54%	46.11%   1.12%	110.76%   0.75%
Portfolio 5	88.94%   1.14%	87.76%   0.61%	106.96%   1.34%	121.38%   0.80%

## Overall Performance / Performance matrix

This is another brief performance matrix of all our portfolios with different investment strategies. The colours has been taken from the previous slide:

Sharpe Coefficient	Equally Weighted	Minimum Variance	Market Cap	Sharpe
Portfolio 1	9.48%	8.68%	8.61%	26.9%
Portfolio 2	13.48%	14.83%	10.93%	26.19%
Portfolio 3	32.54%	50.31%	15.70%	55.72%
Portfolio 4	15.67%	24.92%	14.49%	36.55%
Portfolio 5	25.58%	37.06%	22.08%	48.26%

# Conclusions

1. The **Longevity sector** have been experienced **significant growth** over the past year. This could be clearly seen by the overall dynamics of the chosen companies.
2. Due to the market's significant growth, **all portfolios shows remarkable results, indicating valid investment opportunities**. At the same time such opportunities, i.e. possibilities, **shouldn't be replaced with certainty**.
3. There are plenty of companies that should be considered as promising ones, demonstrating **decent returns**. Another side of the coin for this category of companies is **excessive volatility**, i.e. **risk**.
4. Best performance is shown by **Sharpe ratio-based strategies**. Furthermore, the fifth (balanced) portfolio outperforms the first, second, and fourth portfolios showing return close to the third's, which is the most profitable. At the same time, the level of risk is medium.
5. The overall performance of different investment waging strategies shows that **all types of investors**, both risk averse and risk-seeking, **will find enough opportunities for themselves**.

# Longevity Investment: Big Data Analytics Dashboard

Total amount of capital monitored: \$156B



## Longevity Investment Big Data Analytics Dashboard

Market  
Intelligence

Longevity Investment  
Market Intelligence

Major Trends

Network Diagrams

Interactive MindMaps

### Interactive Mindmaps



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### Dashboard Parameters

DATA POINTS

814090

INVESTORS

9007

PERSONALITIES

16107

SECTORS

14

COMPANIES

19603

SUBSECTORS

140

### Dynamic Industry Charts



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Proteostasis

Competitors' Investors

A. M. Pappas & Associates

ATTC

Assure Health Sciences Accelerator

ATA

Advanced Technology Ventures

ATV

Andex Partners

Quide

Apex Health Ventures

Quide

ArmenWell Partners

Company Competitors

Investor Competitors

### Interactive Network Diagrams



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Company Investor Search

Company Competitors Search

Entrepreneur Search

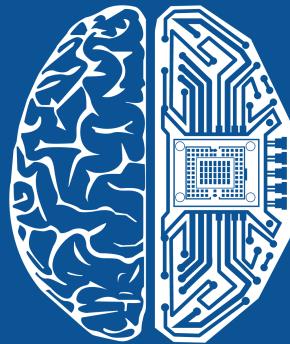
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